a, cont'd

a second tube annularly disposed about the first tube and adapted for receiving a second mixture of an oxygen-containing gas and a second fuel; and,

a third tube annularly disposed about the second tube and adapted for receiving a first reaction reformate from the first tube and a second reaction reformate from the second tube, and for producing a third reaction reformate.

Please add the following claims:

a2

46. The reformer of claim 45 wherein the first catalyst is selected from a first group consisting of nickel, cobalt, platinum, palladium, rhodium, ruthenium, iridium; and combinations thereof; and from a second group consisting of magnesia, magnesium aluminate, alumina, silica, zirconia, potassium, and combinations thereof.

47. The reformer of claim 45 wherein the first tube has a tapered diameter.

48. The reformer of claim 45 wherein the second fuel is heavier by average molecular weight than the first fuel.

49. The reformer of claim 45 further comprising a fractionator communicating with the first and second tubes for delivering first and second fractions to the first and second tubes respectively.

50. The reformer of claim 45 wherein the second tube has a tapered diameter.

51. The reformer of claim 50 wherein the first tube has a first tube inlet and a first tube outlet and the second tube has a second tube inlet and a second tube outlet, the first tube inlet having a diameter less than the first tube outlet and the second tube outlet having a diameter less than the second tube inlet.

cont'd

52. The reformer of claim 45 wherein the third tube has a second catalyst.

53. The reformer of claim 52 wherein the second catalyst is selected from a first group consisting of nickel, cobalt, platinum, palladium, rhodium, ruthenium, iridium, and combinations thereof; and from a second group consisting of magnesia, magnesium aluminate, alumina, silica, zirconia, potassium, and combinations thereof.

54. The reformer of claim 45 further comprising a mixing zone adapted for receiving the first reaction reformate from the first tube and the second reaction reformate from the second tube and directing the first and second reaction reformates into the third tube.

55. The reformer of claim 45 further comprising:

a helical tube disposed about the third tube and having a first end communicating with an oxygen source and a second end communicating with the second tube, the helical tube adapted for receiving the second fuel at a point proximate the second end and directing the second mixture into the second tube; and,

a first vessel disposed about the third tube and the helical tube and adapted for directing the third reaction reformate from the third tube through the first vessel and around the helical tube.

56. The reformer of claim 55 wherein the first vessel further includes a water inlet.

57. The reformer of claim 55 further comprising a second vessel disposed about the first vessel and defining a shift reaction zone between the first and second vessels, the shift reaction zone including a third catalyst.

58. The reformer of claim 57 wherein the third catalyst includes ferric oxide and chromic oxide.